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Nagata et al.

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| [54] | VOICE RECORDING CARD | |
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| [52] | U.S. Cl | |
| 155/90; 379/88; 379/144; 379/357; 379/91; | | |
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| [56] | [56] References Cited | |
| U.S. PATENT DOCUMENTS | | |
| | 3,752,904 8/1 | |
| | 4,007,355 2/1 4,162,610 7/1 | |
| | 4,162,610 //1 4,302,752 11/1 | · |

4,384,288 5/1983 Walton 340/825.34

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[57] ABSTRACT

A voice recording card (1) can record and reproduce a message and when it is inserted into a transmitting and receiving apparatus (3), it can transmit and receive the message. In a recording mode, the message is applied through a microphone (14), converted into a digital signal by an analog/digital converter (21) and is recorded in a memory (22). In a transmission mode, the content of the message is read out from the memory (22) and is transmitted through an interface (24) to the transmitting and receiving apparatus (3). In a receiving mode, the content of the message received by the transmitting and receiving apparatus (3) is recorded in the memory (22) through the interface (24) and is read out, in a reproduction mode, from the memory (22) and converted into an analog signal by a digital-analog converter (23) to be outputted from a speaker (15). The card (1) comprises a central processing unit which controls an electric structure of the card (1) in response to the mode designated by a mode designation key included in a keyboard (13).

15 Claims, 16 Drawing Figures

